parison wherein the multi-layer parison itself is formed from a first and second raw resin.

Applicants note that the particularly claimed logarithmic relationships of claim 1 refer to the melt tension ("MT") and melt flow rate ("MFR") of the first and second raw resin, which initially forms the multi-layer parison. The logarithmic relationships of claim 2, on the other hand, refer to the MT and MFR of test pieces cut from the final foamed and unfoamed layer of the skin-bearing article.

The logarithmic relationships of the first and second raw resin of claim 1 as well as for the test pieces of the foamed and unfoamed layer of the skin-bearing article of claim 2 are described in Fig.'s 8-11, which are now entered into the specification.

Support for Fig. 8, corresponding to the relationship (1) of claim 1 can be found at page 5, line 14 of the specification.

Support for Fig. 9, corresponding to relationships (2) and (3) of claim 1 can be found at page 5, lines 9-13 and 15.

Support for Fig. 10, corresponding to relationship (4) of claim 2 can be found at page 6, line 11.

Support for Fig. 11, corresponding to relationships (5) and (6) of claim 2 can be found at page 6, lines 6-10 and 12.

Support for the claim amendments can be found in the same locations, respectively. Applicants have also amended the

specification to reflect that Fig.'s 8-11 are now a part of the Drawings. No new matter within the meaning of §132 has been added by any of the amendments.

Finally, Applicants submit herewith an English translation of "Plastic Foam Handbook", published on February 28, 1973, establishing the state of the art with regard to chemical foaming agents for low density polyethylene at the time of invention. The original Japanese copies of the relevant portions of the Handbook as well as the copyright page are included.

Accordingly, Applicants respectfully request the Examiner to enter the amendments, carefully reconsider the rejections and allow all claims pending in this application.

1. Rejection of Claims 1-8 and 12-15 under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 1-8 and 12-15 under U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter. The Office Action states:

> The abbreviations 'gf' 'MT_{fr},' 'MT_{rr},' ' MFR_{rr}' and 'MFR_{rr}' are indefinite, as they have not been defined. For purposes of examination, the abbreviation (gf) will be assumed to mean 'grams'. . .

Applicants respectfully traverse the rejection because the abbreviations are clearly defined in the body of claims 1 and 2. In particular, claim 1 recites a first raw resin forming the foamed polypropylene resin layer, wherein the first raw resin forming the foamed layer has a melt tension, MT_{fr}, and a melt flow rate, MFR_{fr}. The subscript "fr" denotes a foamed resin.

The second raw resin forming the unfoamed polypropylene resin layer was previously noted as a melt tension, MT_{rr}, and a melt flow rate, MFR_{rr}, wherein the subscripts "rr" denoted the second raw resin. However, in order to further distinguish the first foamed raw resin from the second unfoamed raw resin, Applicants have now amended the subscript "rr" to "ur" to denote an unfoamed resin, *i.e.* MT_{ur} and MFR_{ur}.

Regarding the term (gf), Applicants note that "gf" denotes units of melt tension, which are expressed in terms of force and not mass. In particular, grams are a unit of mass whereas "gf" is an abbreviation for "gram force" indicating the amount of force imparted onto 1 g of mass by gravity. Corresponding to the well known value of 9.8 N exerted onto 1 kg of mass by gravity, 1 gf is equal to 9.8 mN. Therefore, the term gf particularly points and distinctly claims the subject matter of the claim. The Examiner is correct with respect to all the other variables such as the MT and MFR.

Accordingly, Applicants respectfully submit that the presently claimed invention is definite with regard to this matter and request withdrawal of the rejection.

The Office Action continues that portions of claims 1 and 2 contain process language. The Examiner alleges that the language "which is obtained by molding", "wherein at least part of the opposed inner surfaces . . . are mutually welded" and "by molding a multi-layer foamed parison" are process limitations.

Arguably, the disputed language is not directed to a process but rather defines limitations of the composition. Nevertheless, Applicants have removed the language from the claims and replaced the limitations with phrases beginning with the term "having". For example, Applicants have replaced the phrase "polypropylene resin, which is obtained by molding" with "a skin-bearing article molded from a multi-layer foamed parison <u>having</u> inner surfaces mutually welded".

Accordingly, Applicants respectfully submit that the presently claimed invention is definite with regard to this matter and request withdrawal of the rejection.

The Office Action continues that the phrase "when the melt flow rate is" is indefinite. Applicants have deleted limitations directed to MFR and MT conditions and expressed them as mathematical expressions. For example, the conditional expressions

"where $MFR_{ur} \geq 0.3$" and "where $0.2 \leq MFR_{ur} < 0.3$" replace the paragraph beginning with "when the melt flow rate" of claim 1. Claim 1 now recites logarithmic equations with particular range limitations. In particular, claim 1 recites:

$$\log MT_{fr} > -0.74 \log MFR_{fr} + 0.66 \qquad (1)$$

$$\log MT_{ur} > -1.02 \log MFR_{ur} + 0.47 \quad \text{where } MFR_{ur} \geq 0.3 \qquad (2)$$

$$MT_{ur} \geq 10 \text{ (gf)} \quad \text{where } 0.2 \leq MFR_{ur} < 0.3 \qquad (3).$$

As can be seen, the conditional relationships define where the melt flow rate of the unfoamed resin ("MFR_{ur}") is at least 0.3 (g/10 min) and where the MFR_{ur} is not lower than 0.2 (g/10 min) but lower than 0.3 (g/10 min).

Notably, formerly pending claim 1 incorrectly identified the melt flow rate of the foamed layer ("MFR_{fr}") rather the melt flow rate of the unfoamed resin ("MFR_{rr}") in the paragraph beginning with "when the melt flow rate". But even more notable is the fact that Applicants have now replaced the abbreviation "rr" for the raw resin for the more identifiable abbreviation "ur" wherein "ur" is an abbreviation for the unfoamed resin. Accordingly, the melt flow rate of the unfoamed layer is now defined as ("MFR_{ur}") rather than MFR_{rr}. Finally, Applicants note that the range limitations correspond to the graph shown in new Fig. 9.

Applicants have similarly amended claim 2 in accordance with Fig. 11 to recite:

$$\log MT_{f1} > -0.74 \log MFR_{f1} + 0.79 \quad (4)$$

$$\log MT_{r1} > -1.02 \log MFR_{r1} + 0.69$$

$$\text{where } MFR_{r1} \geq 0.5 \quad (5)$$

$$MT_{r1} \geq 10 \text{ (gf)}$$

$$\text{where } 0.2 \leq MFR_{r1} < 0.5 \quad (6)$$

Again, the conditional expressions correspond to the now deleted paragraph beginning with "when the melt flow rate". In particular, the expressions define where the melt flow rate of a test piece cut from the resin layer ("MFR_{r1}") is at least 0.5 g/10 min) and where MFR_{r1} is not lower than 0.2 (g/10 min) but lower than 0.5 (g/10 min).

Accordingly, Applicants respectfully submit that the presently claimed invention is definite with regard to this matter and request withdrawal of the rejection.

The Office Action continues that the phrases "the outer side", "first polypropylene resin" and "second polypropylene resin" of claims 1 and 2 lack antecedent basis. Applicants have amended the claims to overcome the rejections. Accordingly, Applicants respectfully submit that the presently claimed invention is definite with regard to this matter.

For all these reasons, Applicants submit that the presently

pending claims particularly point out and distinctly claim the subject matter of the invention and request withdrawal of the rejections over §112, second paragraph.

2. Rejection of Claims 1-2, 4-8 and 14-15 under 35 U.S.C. §103(a)

The Office Action rejects claims 1-2, 4-8 and 14-15 under U.S.C. §103(a) as being unpatentable over US 5,714,227 ("Sugawara et al.") in view of US 5,602,223 ("Sasaki et al.") and further in view of US 5,801,205 ("Nishibori et al."). The Office Action basically makes the same rejection made to claims 3 and 12-13 in the Office Action of September 26, 2002, to presently pending claims 1-2, 4-8 and 14-15.

Applicants respectfully traverse this rejection because all the claimed limitations have not been taught by the cited references. In particular, none of the cited references teach the claimed logarithmic relationships between the melt tension and melt flow rate to produce a low density polypropylene skin bearing article. Moreover, there is no teaching provided in the art that would have suggested or motivated one of ordinary skill to make or even undertake a study of the presently claimed logarithmic relationships between melt tension and melt flow rate.

The Rejection

The Office Action asserts that the desirability of providing for a density of 25 kg/m^3 and a melt flow rate of greater than 0.3 g/10 min would have been demonstrated by the combination of Nishibori et al. and Sasaki et al. See Office Action at page 6, line 11-13.

The Official Action reaches this conclusion by stating that Nishibori et al. discloses a density of 25 kg/m^3 for a foamed layer for the interior of an automobile for the purpose of forming a foam which is light-weight and durable while Sasaki et al. teaches the use of a polypropylene having a melt flow rate of greater than 0.3 g/10 min for the purpose of using a film having high moldability.

The Office Action thereby concludes that it would have been obvious for one of ordinary skill to provide a density of 25 kg/m^3 in the parison of Sugawara et al. in order to use a film having a moldability as taught by Nishibori et al. and a melt flow rate of at least 0.3 g/10 min in Sugawara et al. in order to use a film having high moldability as taught by Sasaki et al.

Background

Skin-bearing articles having a foamed layer are typically made by mutually welding a multi-layer parison. The multi-layer parison has both a foamed resin layer and an unfoamed layer disposed on the

outer side of the foamed layer. In particular, the skin-bearing article is formed by inserting the multi-layer foamed parison into a mold and fusing the inner surfaces of the parison to each other.

The multi-layer foamed parison itself is obtained by a process in which a foamable polypropylene resin containing a foaming agent, and an unfoamable polypropylene resin with no foaming agent are co-extruded from an extrusion machine. The polypropylene expands and the resulting multi-layer is molded in its softened state. However, since the multi-layer foamed parison is in a half-melted state (softened state) the density of the foamed layer density is very difficult to measure. Consequently, the density of the foamed layer density of the parison cannot be regulated.

Even where a relatively low density foamed layer of the multi-layer parison has been produced, other problems such as cracks or holes in the outer polypropylene resin layer occur. The reason may be related to low closed cell ratio, low mechanical strength, and other lowered physical properties of the formed foamed layer. In particular, the cells in the low-density foamed layer may easily collapse due to thin cell membranes or due to heat during the welding process. Another reason for cracks and holes may be due to volume expansion of the foamed layer during the parison formation process.

Moreover, simply producing a low density skin-bearing article to begin with is extremely difficult as shown by the submitted excerpt from "Plastic Foam Handbook". Clearly, many obstacles and problems prevent the formation of a low density skin bearing article having both a foamed layer and an unfoamed layer.

Accordingly, Applicants undertook a study to overcome long standing and well known problems related to low density skin-bearing articles having both a low density foamed layer and a resin outer layer. Applicants' study resulted in Applicant's novel and unobvious discovery that a multi-layer foamed parison having superior physical properties and a desirable low density of 25 to 400 kg/m^3 can be produced by the presently claimed logarithmic relationships between the melt tension and melt flow rate.

Traversal

Applicants respectfully traverse the rejection because the presently claimed logarithmic equations are not taught anywhere in the cited references or in the prior art. Moreover, the equations are not merely optimization of results effective variables but rather Applicants' own inventive study to overcome known problems associated with producing a low density skin-bearing article having both a foamed layer and an unfoamed outer layer. In support thereof, Applicants submit an English translation of "Plastic Foam

Handbook" that establishes generally the difficulty of producing low density polyethylene foam to use chemical foaming agent at the time of invention, and more particularly the impossibility of using chemical foaming agents with normal polypropylene, which is more difficult to expand than polyethylene, as disclosed in Sugawara et al. to produce the presently claimed low-density skin-bearing article.

Turning to the rule, the Federal Circuit held that a *prima facie* case of obviousness must establish: (1) some suggestion or motivation to modify the references; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

Even if a *prima facie* case of obviousness has been established, secondary considerations such as commercial success, long felt but unsolved need, failure of others, and unexpected results may nevertheless give rise to a patentable invention. Graham v. John Deere Co., 148 U.S.P.Q. 459 (1966). Where the claimed and prior art products are substantially similar, a *prima facie* case of obviousness can also be rebutted by demonstrating that the prior art products do not possess the characteristics of the claimed invention. In re Best, 196 U.S.P.Q. 430, 433 (C.C.P.A.

1977).

In the captioned application, presently pending claim 1 recites a skin-bearing article molded from a multi-layer foamed parison having inner surfaces mutually welded, comprising:

a foamed polypropylene resin layer having a density of 25 to 400 kg/m^3 formed from a **first** raw resin, and

an **un**foamed polypropylene resin layer formed from a **second** raw resin provided on the outer side of the foamed polypropylene resin layer

said **first** raw resin forming the foamed polypropylene resin layer having a melt tension, MT_{fr} (gf), and a melt flow rate, MFR_{fr} (g/10 min), and satisfying the following relationship (1), and

said **second** raw resin forming the **un**foamed polypropylene resin layer having a melt tension, MT_{ur} (gf), and a melt flow rate, MFR_{ur} (g/10 min), and satisfying the following relationships (2) and (3)

$$\log MT_{fr} > -0.74 \log MFR_{fr} + 0.66 \quad (1)$$

$$\log MT_{ur} > -1.02 \log MFR_{ur} + 0.47$$
$$\text{where } MFR_{ur} \geq 0.3 \quad (2)$$

$$MT_{ur} \geq 10 \text{ (gf)}$$
$$\text{where } 0.2 \leq MFR_{ur} < 0.3 \quad (3).$$

However, none of the cited references teach the presently claimed

logarithmic relationships.

The logarithmic relationships are critical to the invention because they claim the relationship between the melt tension ("MT") and melt flow rate ("MFR") of a first raw resin that forms the foamed layer in a multi-layer parison and a second raw resin that forms the unfoamed layer in the same multi-layer parison.

As shown by newly submitted Fig. 8, the relationship (1) in claim 1 is drawn on a double logarithmic chart where MT_{fr} is the vertical axis and represents the melt tension of the foamed layer. MFR_{fr} represents the melt flow rate of the foamed layer and is the horizontal axis.

In particular, the logarithmic relationships represent the melt tension and melt flow rate values for a first raw resin material forming the foamed layer whose MT_{fr} and MFR_{fr} are above the slope of the relationship shown in Fig. 8. For example, when MFR_{fr} is 10 (g/10 min), it means that material is used in which MT_{fr} has a log MT_{fr} value exceeding -0.08 according to relationship (1) or specifically in which MT_{fr} exceeds 0.83 (gf). When MFR_{fr} is 1 (g/10 min), it means that a material in which MT_{fr} has a log MT_{fr} exceeding 0.66, or specifically in which log MT_{fr} exceeds 4.57 (gf), is used as a polypropylene base material to form the foamed polypropylene resin layer.

Fig. 9 represents relationships (2) and (3) of claim 1 drawn

on a double logarithmic chart where MT_{ur} is the vertical axis and MFR_{ur} is the horizontal axis. The equation is drawn as a straight line for log $MT_{ur} = 1$. The variables represent the melt tension and melt flow rate of the unfoamed raw resin. The unfoamed raw resin has a MT_{ur} and MFR_{ur} falling above the range of the slope in Fig. 9. This means that with a polypropylene base material whose MFR_{ur} is in a range not lower than 0.2 but lower than 0.3 (g/10 min), a polypropylene base material with an MT_{ur} of at least 10 (gf) is used. With a polypropylene base material whose MFR_{ur} is at least 0.3 (g/10 min), a polypropylene base material whose MT_{ur} is greater than the MT_{ur} calculated from relationship (2) is used.

Fig. 10 represents relationship (4) in claim 2 drawn on a double logarithmic chart where MT_{f1} is the vertical axis and MFR_{f1} is the horizontal axis. The sample cut out from the foamed resin layer of the skin-bearing article in claim 2 is one in which MT_{f1} and MFR_{f1} are within the range of the slanting line in Fig. 10.

Fig. 11 represents relationships (5) and (6) in claim 2. A straight line for log $MT_{r1} = 1$ is drawn on a double logarithmic chart where MT_{r1} is the vertical axis and MFR_{r1} is the horizontal axis. The sample cut out from the resin layer of the skin-bearing article is one in which the MT_{r1} and MFR_{r1} are within the range of the slanting line in Fig. 11.

Notably, and as shown in Fig.'s 9 and 11, both MFR_{ur} and MFR_{rl} must be 0.2 g/10 min or greater.

In combination, the claimed logarithmic relationships go far beyond simple experimentation of results-effective variables.

Turning to an analysis of the cited references, Applicants note that none of the cited references teach melt tensions and melt flow rates as shown by Fig.'s 8-11.

Sugawara et al. only teaches a chemical foaming agent with normal polypropylene to form a foamed layer. But as is made clear by the "Plastic Foam Handbook" submitted to show the state of the art, it is impossible to obtain a satisfactory foamed layer with a low density of 25 to 400 kg/m^3 using a chemical foaming agent with normal polypropylene as taught by Sugawara et al. In particular, the dissolved residue of the chemical foaming agent acts as a nucleus for cells thereby resulting in a large number of fine cells, which tend to rupture at the presently claimed density ranges. See "Plastic Foam Handbook" at page 119, English translation, 2nd paragraph (stating "extensive foaming is not possible even if a large amount of foaming agent is mixed in . . . and adding a large amount of foaming agent causes irregularities in the surface"). Sugawara et al. simply fails to provide any indication of the presently claimed logarithmic relationships.

Although Nishibori et al. teaches a 25 kg/m^3 foamed layer,

Nishibori et al. employs a thermosetting resin meaning that molding must be done by sandwich foam molding or injection foam molding to form a foamed layer. The skin-bearing article of Nishibori et al. cannot be produced from a hollow multi-layer foamed parison formed by extrusion wherein the multi-layer foamed parison is then molded. Again, Nishibori et al. also fails to provide any teaching other than a desired density range.

Similarly, Sasaki et al. merely states that it is preferable to form a film with a material having a specified melt flow rate and an unspecified melt tension. Sasaki et al. simply does not teach a logarithmic relationship between the melt flow rate and melt tension of the foamed and unfoamed layers necessary to make the presently claimed density range. Although melt tension does indeed decrease with increased melt flow rate, no specific teachings relate to the desirability or even in fact the necessity of exploring a relationship between the two with regard to forming a skin bearing article formed from a multi-layer parison having both a foamed and unfoamed layer.

In summary, the foam molding process of Nishibori et al. is entirely different from that of the present invention while Sasaki et al. does not relate to molding a multi-layer foamed parison. Moreover, Sugawara et al. is inoperable with respect to a low density skin bearing article as shown by "Plastic Foam Handbook".

For all these reasons, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejections of claims 1-2, 4-8 and 14-15 under 35 U.S.C. §103.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of the pending claims and allow the pending claims. Favorable action with an early allowance of the claims pending is earnestly solicited.

Respectfully submitted,

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Attorney's Docket No. HOS-57
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED JUN 30 2003 GROUP 1700

In re Application of:	Group Art Unit: 1772
KOGURE, GOKURAKU, TAKAHASHI IMANARI, KITAHAMA	Examiner: Marc A. Patterson
Serial No. 09/629,949	
Filed: August 1, 2000	

For: **MULTI-LAYER EXPANSION-MOLDED ARTICLE OF POLYPROPYLENE RESIN, PRODUCTION PROCESS THEREOF, AND CONTAINER, SHOCK-ABSORBING MATERIAL FOR AUTOMOBILE AND AUTOMOTIVE MEMBER FORMED OF THE MULTI-LAYER EXPANSION- MOLDED ARTICLE OF POLYPROPYLENE RESIN**

Appendix A

Please amend the claims according to the proposed revision to 37 C.F.R. §1.121 concerning a manner for making claim amendments.

---

1. (Currently Amended) A skin-bearing article ~~of a polypropylene resin, which is obtained by molding~~ molded from a multi-layer foamed parison having inner surfaces mutually welded, comprising:

a foamed polypropylene resin layer having a density of 25 to 400 kg/m^3 formed from a first raw resin, and

~~a~~ an unfoamed polypropylene resin layer formed from a second raw resin provided on the outer side of the foamed polypropylene resin layer ~~in a mold~~

~~wherein at least part of the opposed inner surfaces of foamed resin layer in the parison are mutually welded to each other~~

~~wherein~~

~~a~~ said first raw ~~polypropylene~~ resin forming the foamed polypropylene resin layer ~~in the skin bearing article has~~ having a melt tension, MT_{fr} (gf), and a melt flow rate, MFR_{fr} (g/10 min), and ~~satisfies~~ satisfying the following relationship (1), and

~~a~~ said second raw ~~polypropylene~~ resin forming the unfoamed polypropylene resin layer ~~on the surface of the foamed polypropylene resin layer has~~ having a melt tension, MT_{ur} $\cancel{MT_{rr}}$ (gf), and a melt flow rate, MFR_{ur} $\cancel{MFR_{rr}}$ (g/10 min), and ~~satisfies~~ satisfying the following ~~relationship~~ relationships (2) and (3)

~~when the melt flow rate MFR_{fr} is at least 0.3 (g/10 min), or the melt tension, MT_{fr} is at least 10 (gf) when the melt flow rate, MRR_{fr} is not lower than 0.2 (g/10 min), but lower than 0.3 (g/10 min):~~

$$\log MT_{fr} > -0.74 \log MFR_{fr} + 0.66 \quad (1)$$

$$\log \cancel{MT_{rr}}\ MT_{ur} > -1.02 \log \cancel{MFR_{rr}}\ \underline{MFR_{ur}} + 0.47$$

$$\underline{\text{where } MFR_{ur} \geq 0.3} \quad (2)$$

$$\underline{MT_{ur} \geq 10\ (gf)} \quad \underline{\text{where } 0.2 \leq MFR_{ur} < 0.3} \quad \underline{(3)}.$$

2. (Currently Amended) A skin-bearing article ~~of a polypropylene resin, which is obtained by molding~~ molded from a multi-layer foamed parison having inner surfaces mutually welded, comprising:

a foamed polypropylene resin layer having a density of 25 to 400 kg/m^3, and

~~a~~ an unfoamed polypropylene resin layer provided on the outer side of the foamed polypropylene resin layer ~~in a mold~~

~~wherein at least part of the opposed inner surfaces of foamed polypropylene resin layer in the parison are mutually welded to each other, and has a polypropylene resin layer on the surface of a foamed polypropylene resin layer,~~

~~wherein~~

the foamed polypropylene resin layer in the skin-bearing article ~~has~~ having a melt tension, MT_{f1} (gf), and a melt flow rate, MFR_{f1} (g/10 min), and ~~satisfies~~ satisfying the following relationship ~~(3)~~ (4), and

the unfoamed polypropylene resin layer on the surface of the foamed polypropylene resin layer ~~has~~ having a melt tension, MT_{r1} (gf), and a melt flow rate, MFR_{r1} (g/10 min), and ~~satisfies~~ satisfying the following ~~relationship~~ relationships ~~(4)~~ (5) and (6) ~~when the melt flow rate, MFR_{f1} is at least 0.5 g/10 min), or the melt tension, MT_{f1} is at least 10 (gf) when the melt flow rate, MFR_{r1} is not lower than 0.2 (g/10 min), but lower than 0.5 (g/10 min):~~

$$\log MT_{f1} > -0.74 \log MFR_{f1} + 0.79 \qquad \cancel{(3)}\ (4)$$

$$\log MT_{r1} > -1.02 \log MFR_{r1} + 0.69 \quad \text{where } MFR_{r1} \geq 0.5 \qquad \cancel{(4)}\ (5)$$

$$MT_{r1} \geq 10\ (gf) \quad \text{where } 0.2 \leq MFR_{r1} < 0.5 \qquad (6).$$

3. (Currently Amended) The skin-bearing article ~~of the polypropylene resin~~ according to Claim 1 or 2, wherein the thickness of the unfoamed polypropylene resin layer formed on

the surface of the foamed polypropylene resin layer is 100 μm to 10 mm, and the overall density of the skin-bearing article is 20 to 400 kg/m^3.

4. (Currently Amended) The skin-bearing article ~~of the polypropylene resin~~ according to Claims 1 or 2, wherein the area ratio of the mutually welded portion in the inner surface of the skin-bearing article is at least 25%.

5. (Currently Amended) The skin-bearing article ~~of the polypropylene resin~~ according to Claims 1 or 2, wherein the area ratio of the mutually welded portion in the inner surface of the skin-bearing article is at least 60%.

6. (Currently Amended) The skin-bearing article ~~of the polypropylene resin~~ according to Claims 1 or 2, wherein the area ratio of the mutually welded portion in the inner surface of the skin-bearing article is at least 80%.

7. (Currently Amended) The ~~multi-layer~~ skin-bearing article ~~of the polypropylene resin~~ according to Claims 1 or 2,

wherein the area ratio of the mutually welded portion in the inner surface of the skin-bearing article is at least 95%.

8. (Currently Amended) The skin-bearing article ~~of the polypropylene resin~~ according to Claims 1 or 2, which further has a skin layer formed of a synthetic resin on the outer side of the <u>unfoamed</u> polypropylene resin layer.

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Currently Amended) A container formed of the skin-bearing article ~~of the polypropylene resin~~ according to Claim 1 or 2, wherein the overall density of the container is 30 to 400 kg/m^3, and the thickness of the <u>unfoamed</u> polypropylene resin layer is 200 μm to 5 mm.

13. (Currently Amended) A shock-absorbing material for automobile formed of the skin-bearing article ~~of the~~

~~polypropylene resin~~ according to Claim 1 or 2, wherein the overall density of the shock-absorbing material is 25 to 300 kg/m^3 and the thickness of the unfoamed polypropylene resin layer is 200 μm to 7 mm.

14. (Currently Amended) A member for automobile formed of the skin-bearing article ~~of the polypropylene resin~~ according to Claim 1 or 2.

15. (Original) The member for automobile according to Claim 14, wherein the member for automobile is a member selected form among a bumper, pillar, instrument panel, spoiler, fender, side step, door trim, grille guard and trunk board.

Attorney's Docket No. HOS-57
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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GROUP 1700

In re Application of:	)	Group Art Unit: 1772
KOGURE, GOKURAKU, TAKAHASHI IMANARI, KITAHAMA	)	Examiner: Marc A. Patterson
Serial No. 09/629,949	)	
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For: **MULTI-LAYER EXPANSION-MOLDED ARTICLE OF POLYPROPYLENE RESIN, PRODUCTION PROCESS THEREOF, AND CONTAINER, SHOCK-ABSORBING MATERIAL FOR AUTOMOBILE AND AUTOMOTIVE MEMBER FORMED OF THE MULTI-LAYER EXPANSION- MOLDED ARTICLE OF POLYPROPYLENE RESIN**

Appendix B

Please amend the claims according to the proposed revision to 37 C.F.R. §1.121 concerning a manner for making specification amendments.

Please add the following new paragraphs after the paragraph ending on line 23 of page 10:

--Fig. 8 is a graphical representation of the relationship $\log MT_{fr} > -0.74 \log MFR_{fr} + 0.66$ drawn on a double logarithmic chart where MT_{fr} is the vertical axis and represents the melt

tension of a foamed layer and MFR_{fr} represents the melt flow rate of the foamed layer and is the horizontal axis.

Fig. 9 is a graphical representation of the relationships $\log MT_{ur} > -1.02 \log MFR_{ur} + 0.47$ where $MFR_{ur} \geq 0.3$ and $MT_{ur} \geq 10$ (gf) where $0.2 \leq MFR_{ur} < 0.3$ drawn on a double logarithmic chart where MT_{ur} is the vertical axis and represents the melt tension of an unfoamed layer and MFR_{ur} is the horizontal axis and represents the melt flow rate of the unfoamed layer.

Fig. 10 is a graphical representation of the relationship $\log MT_{fl} > -0.74 \log MFR_{fl} + 0.79$ drawn on a double logarithmic chart where MT_{fl} is the vertical axis and represents a sample cut out from a foamed resin layer of a skin-bearing article and MFR_{fl} is the horizontal axis and represents the melt flow rate of the sample cur out from the foamed resin layer.

Fig. 11 is a graphical representation of the relationships $\log MT_{rl} > -1.02 \log MFR_{rl} + 0.69$ where $MFR_{rl} \geq 0.5$ and $MT_{rl} \geq 10$ (gf) where $0.2 \leq MFR_{rl} < 0.5$ drawn on a double logarithmic chart where MT_{rl} is the vertical axis and represents the melt tension of a resin layer and MFR_{rl} is the horizontal axis and represent the melt flow rate of the resin layer.--